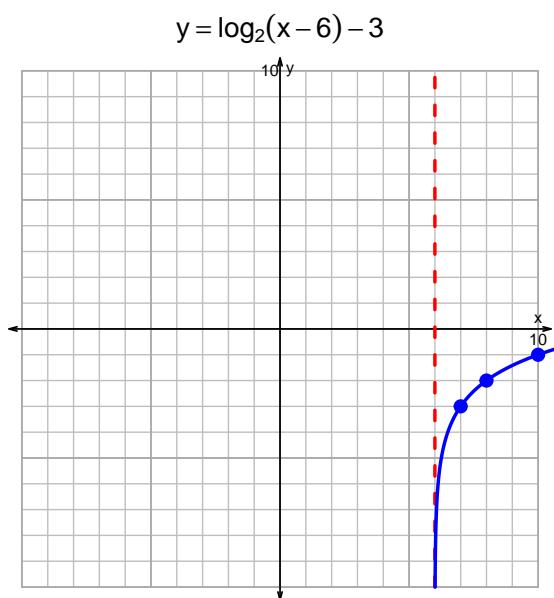
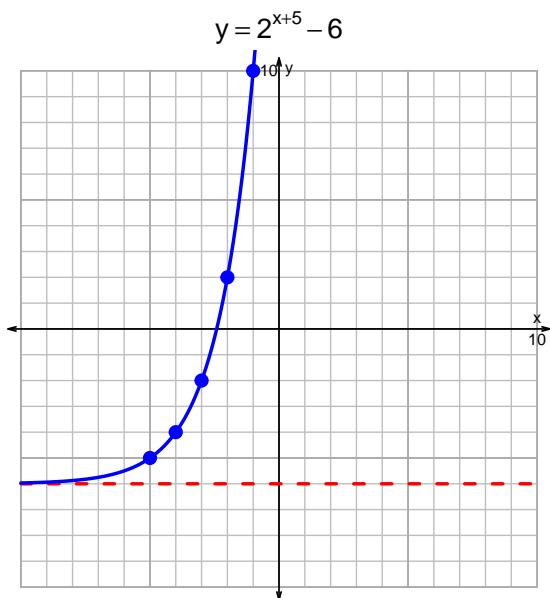


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v241)

1. Graph $y = 2^{x+5} - 6$ and $y = \log_2(x - 6) - 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$23 = \left(\frac{4}{5}\right) \cdot 10^{-7t/3}$$

Divide both sides by $\frac{4}{5}$.

$$\frac{23 \cdot 5}{4} = 10^{-7t/3}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{23 \cdot 5}{4} \right) = \frac{-7t}{3}$$

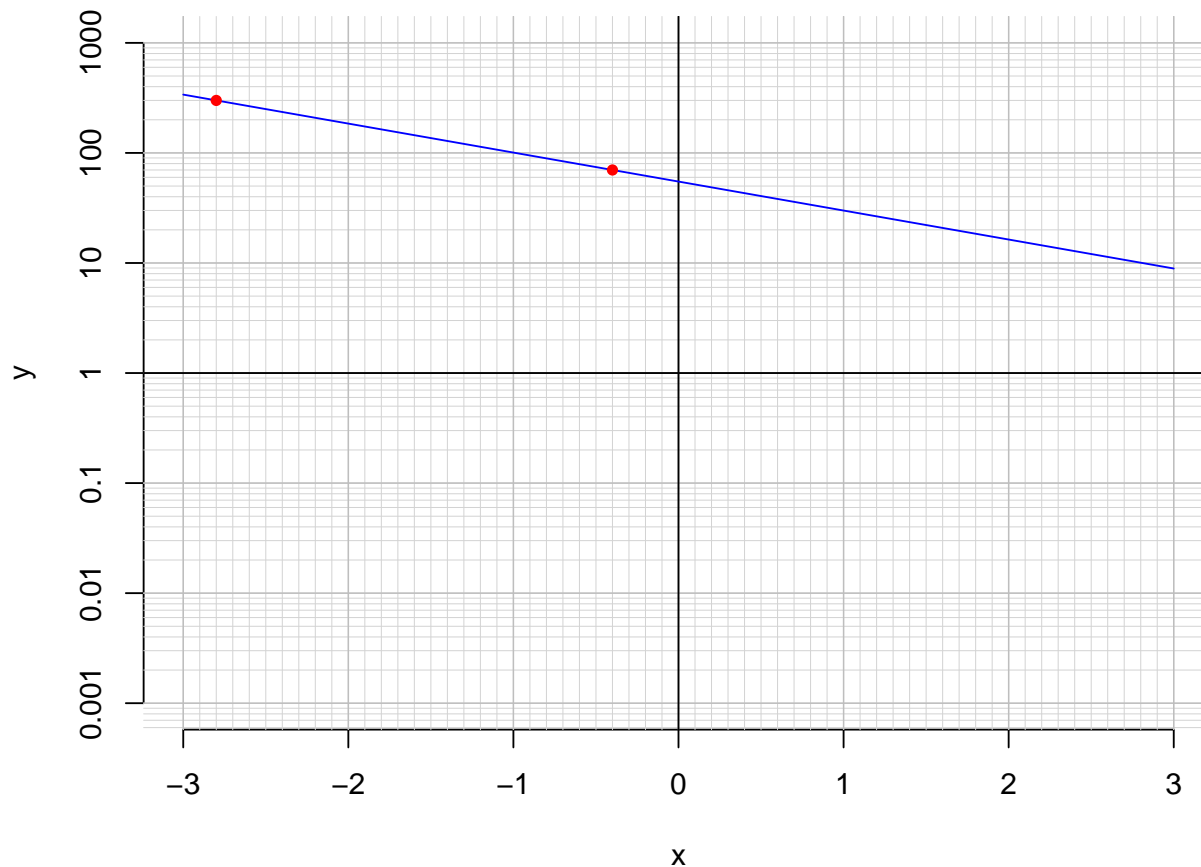
Divide both sides by $\frac{-7}{3}$.

$$\frac{-3}{7} \cdot \log_{10} \left(\frac{23 \cdot 5}{4} \right) = t$$

Switch sides.

$$t = \frac{-3}{7} \cdot \log_{10} \left(\frac{23 \cdot 5}{4} \right)$$

3. An exponential function $f(x) = 54.9 \cdot e^{-0.606x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-0.4)$.

$$f(-0.4) = 70$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{0.606} \cdot \ln\left(\frac{x}{54.9}\right)$$

- c. Using the plot above, evaluate $f^{-1}(300)$.

$$f^{-1}(300) = -2.8$$